DRAFT

123 Tice Boulevard, Suite 205
Woodcliff Lake, New Jersey 07677
201.930.9890

ANCHOR QEA

October 27, 2020

Caroline Kwan and Mark Schmidt
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, New York 10007-1866

Re: Input on CSTAG Recommendations on Operable Unit 3 Proposed Early Action

Dear Caroline and Mark:

On behalf of the Newtown Creek Group (NCG), this letter provides responses to key comments and recommendations from the Contaminated Sediments Technical Advisory Group (CSTAG) on the Operable Unit 3 (OU3) Proposed Early Action (EA), dated August 20, 2020. The NCG believes that the CSTAG recommendations reflect an incomplete understanding of the policy, legal, and technical premises for the Focused Feasibility Study (FFS) and its evaluation of a proposed interim EA in creek mile (CM) 0–2. While the majority of this letter focuses on the technical premises for this project, the policy and legal premises are equally important and should not be overlooked in considering the merits of this project—and in fact, all three factors are what ultimately led to the NCG's interest in pursuing this project.

Policy: This project was developed in full consultation and collaboration with the U.S. Environmental Protection Agency (USEPA) Region 2 and Headquarters career and political staff over more than a 2-year period. In many ways, it has been a model for how to achieve a substantial EA at sediment sites across the country. In fact, it is one of two sediment sites in the country piloting an EA with the encouragement of the agency, consistent with the Administrator's Superfund Task Force recommendations, as well as the draft adaptive management guidance under development within the USEPA Office of Superfund Remediation and Technology Innovation. Region 2 and USEPA Headquarters stepping back from this project based on recommendations from CSTAG would be inconsistent with recent Superfund policy recommendations concerning EA and adaptive management. This would have implications for potentially responsible party willingness to step forward on EAs at future sites.

Legal: The NCG and USEPA entered into an Administrative Order on Consent for OU3 (OU3 Order) that sets forth the four key technical positions underpinning the project and explicitly defines the parameters of the potential interim EA that is to be evaluated in the FFS. The limits of those parameters were established in concert with Region 2 technical and legal staff, and they are based on the extensive findings from studies throughout Newtown Creek that took 8+ years and cost more than $100 million. The CSTAG recommendations are inconsistent with those parameters.

Technical: The NCG and Region 2 have engaged in extensive dialogue over the results of the Remedial Investigation/Feasibility Study (RI/FS) investigations to date. The findings from those

investigations support the four key positions that are the underpinnings of the conceptual site model (CSM) as stated in the OU3 Order. The draft FFS briefly summarizes the extensive evaluations and lines of evidence that support the four key CSM positions and evaluates potential EA alternatives according to National Contingency Plan (NCP) Feasibility Study (FS) evaluation criteria. The full *Remedial Investigation Report* (RI Report) and its supporting appendices provide the extensive detailed evaluations that support these key CSM positions. The outcome of the evaluations completed in the FFS supports the EA for the following reasons:

- The EA is an interim remedy that will include rigorous performance monitoring to test the accuracy of the key CSM positions and inform final remedial decisions as part of the Operable Unit 1 (OU1) RI/FS process.
- The EA is technically feasible and sustainable.
- The EA provides an opportunity to learn and test key positions that would eventually be applicable site wide (and thus is consistent with USEPA adaptive management principles).

Based on all of the above and the responses to four of the most significant CSTAG recommendations in the remainder of this letter, the NCG reaffirms its commitment to the proposed EA as defined in the OU3 Order, and requests that Region 2 supports its approval.

CSTAG Recommendation 1: Appropriateness of the Early Action Area

CSTAG recommended a more complete rationale be provided for selecting a downstream, less-contaminated reach for an EA, and recommended that Region 2 should document why Newtown Creek's nonaqueous phase liquid (NAPL) sources and contaminant of concern (COC) hot spots recommended for action by CSTAG in 2015 were not selected.

The NCG maintains that an interim EA in CM 0–2 is appropriate for the following reasons:

1. It is consistent with CSTAG's 2015 recommendation[1] to consider the main stem below the Turning Basin as a separate unit due to the extent of hydraulic connection with the East River.
2. It is consistent with the NCP, which states that, "Sites should generally be remediated in operable units when EAs are necessary or appropriate to achieve significant risk reduction quickly, when phased analysis and response is necessary or appropriate given the size or complexity of the site, or to expedite the completion of total site cleanup" (40 Code of Federal Regulations [CFR] 300.430(a)(1)(ii)(A)).
3. It is an opportunity to make progress on a large portion of the creek now, while the evaluation and remedial planning of the more complex remainder of the creek continues, to gain direct

[1] Recommendation 12 states the following: "CSTAG recommends that Region 2 consider whether it is appropriate to divide the study area into smaller decision units in order to refine site characterization and remedy evaluation (e.g., tributaries to the Creek, the confluence with the East River, and the turning basin). This approach may be beneficial should decision units exhibit different risk levels or site characteristics that may warrant a different remedy or combination of remedies" (CSTAG 2015).

experience working on the creek, and to confirm and refine the CSM that has been developed for the entire creek.

4. It is an interim EA built on the following four key CSM positions detailed in the OU3 Statement of Work (OU3 SOW), which are specifically supported by multiple lines of evidence in the draft FFS (and also are consistent with the draft RI Report for the entire creek, which is currently being reviewed by Region 2):

    - Tidal flow from the East River is currently the dominant source of solids to the surface water and sediment bed in OU3.
    - OU3 is net depositional, and natural recovery toward long-term equilibrium conditions is occurring and expected to continue via deposition of primarily East River solids.
    - The creek bed in OU3 is physically stable.
    - No ongoing external inputs will negatively affect EA remedy performance, either because they are negligible or because they represent an ongoing input that will influence long-term equilibrium conditions.

    These lines of evidence support that natural recovery is occurring in CM 0–2. Doing an interim EA in this reach can accelerate that process.

Lastly, CSTAG's 2015 recommendations identified three potential conditions that should be considered in an EA (i.e., NAPL removal actions, upland source control, and/or COC hot spot removal actions). Each of these conditions was in fact carefully evaluated through RI/FS studies subsequent to those 2015 recommendations as follows:

- The NCG and Region 2 rigorously followed CSTAG's 2015 recommendation[2] to determine if and where NAPL was mobile. As described further below under "CSTAG Recommendation 5: CSM and Remedy Assumptions," the NCG spent several years and more than $11 million in studying NAPL mobility. Those results verify that mobile NAPL is not present in the lower 2 miles. Further, those results do not indicate a discrete area outside of OU3 that is a candidate for a targeted NAPL removal.
- Upland sources have been evaluated throughout the Study Area, and in particular, in the lower 2 miles, because of the importance of confirming that no upland sources would impact the interim remedy's success. In response to CSTAG's 2015 recommendations

[2] Recommendation 14 states the following: "CSTAG recommends that ebullition be further evaluated as a potential significant transport mechanism for hydrophobic contaminants present as NAPL. It is important to determine where the coal tar/NAPL is located within the study area (i.e., behind the bulkhead, under the sediments, and upland pools), what phase it is in, the location of any pressure gradients, and how it is entering the Creek and its tributaries. Understanding how the coal tar is entering the Creek will be critically important for evaluating effective remedies in the FS to contain, treat, or remove it. CSTAG recommends that Region 2 identify where the mobile fraction of coal tar is located in the subsurface. Technologies that can evaluate the mobile fraction of coal tar have been found to be useful at some sites and should be considered" (CSTAG 2015).

(Recommendation 4: Remedial Alternatives[3]), the NCG implemented a shoreline sampling effort targeted at further characterizing the potentially erodible nearshore areas in select locations identified based on their potential to contribute to sediment contamination. That assessment did not identify any shoreline areas with elevated COC concentrations in the lower 2 miles (CSTAG misidentified an elevated total polychlorinated biphenyl [PCB] sample in Dutch Kills as being in the main stem at CM 1.2). Nor did the assessment identify any ongoing shoreline seeps (e.g., a seep emanating from the Former Pratt Oil Works observed in 2016 has been eliminated as a result of the construction of a sheetpile wall).

- Further, the NCG has solicited input from the New York State Department of Environmental Conservation (NYSDEC), the jurisdictional agency for upland sites, on upland sites within the lower 2 miles and no sites have been identified that pose a threat to the remedy. In fact, as recently as July 2020, NYSDEC presented to the Newtown Creek Citizen's Advisory Group (CAG) and remarked there are no sites within the lower 2 miles that warrant upland remediation to address concerns related to sediment re-contamination.
- Isolated hot spot contamination (i.e., localized areas of contaminated sediment that pose a very high risk) does not exist in Newtown Creek. The sediment contamination characteristics at Newtown Creek are generally spatially segregated into the following three areas: the area downstream of the Turning Basin (i.e., OU3), the Turning Basin itself, and the tributaries. Downstream of the Turning Basin, surface sediment COC concentrations are relatively low, and while there is a gradual gradient of increasing surface sediment COC concentrations proceeding upstream, there are no "hot spots" with significantly different surface sediment COC concentrations. Within the Turning Basin, relatively high surface sediment COC concentrations are widespread, and no areas are uniquely higher than other areas. Tributaries are more proximate to relatively high ongoing sources and do not have significant discrete hot spots.

CSTAG Recommendation 3: Remedial Action Levels

CSTAG recommended that Region 2 evaluate a wider range of remedial action levels (RALs), and develop or describe RALs based on site-related conditions and evaluate them in the context of exposure reduction.

The OU3 SOW defined a process that would use USEPA-selected RALs, determined based on reference area data and best professional judgement, to identify Target Areas that when remediated would reduce surface-weighted average concentrations (SWACs) in CM 0–2 to within the range of reference areas at time zero (T=0). Thus, the outcome of the EA would be to enhance the recovery

[3] Recommendation 4 states the following: "CSTAG recommends that Region 2 refine the conceptual site model to more accurately quantify the relative significance of erosional shorelines, groundwater, and leaking bulkheads as contaminant sources to the Creek" (CSTAG 2015).

process that is occurring in CM 0–2, followed by rigorous monitoring of the effectiveness and sustainability of the remedy progression toward long-term equilibrium conditions, as well as further confirm the CSM.

The RALs are appropriate for the following reasons:

1. Consistent with USEPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005), if natural recovery processes are working, sediment remedies should not have to achieve long-term goals at T=0 if they will do so in a reasonable timeframe. Natural recovery processes are well documented in CM 0–2 as a result of empirical data collected and numerical models developed during the RI/FS process. An interim EA will enhance these ongoing processes. Achieving long-term equilibrium concentrations immediately following construction (i.e., T=0) is not a cost-effective risk management outcome.

   Empirical data and modeling results indicate that CM 0–2 is currently moving toward long-term equilibrium concentrations at a measurable rate. The ranges of RALs selected by Region 2 and evaluated in the FFS already provide SWAC reductions at T=0 that are approaching the high end of estimated long-term equilibrium concentrations. For example, the draft FFS considers the reduction in PCB SWAC from the existing 0.82 milligram per kilogram (mg/kg) to a predicted 0.54 mg/kg associated with Alternative 3, which is a 34% reduction. The estimated T=0 SWAC achieved under Alternative 3 approaches the upper end (0.46 mg/kg as further described in Table 6-3 of the draft FFS) of estimated long-term equilibrium values in CM 0–2. This is an appropriate outcome for an EA given that robust post-EA monitoring will generate information to evaluate the estimates of long-term equilibrium concentrations.
2. Determining RALs linked to exposure concentrations based solely on East River input would not be appropriate given other background inputs that will influence the creek long term. Neglecting the input of these sources that are considered part of site-specific background (e.g., combined sewer overflows and stormwater, as discussed in USEPA's 2019 memorandum *Consideration of Background and Reference Area Information for the Study Area at the Newtown Creek Superfund Site*) neglects inputs that will directly influence the long-term equilibrium concentrations that can be achieved in CM 0–2. The draft FFS specifically evaluates these sources as part of the long-term effectiveness evaluation of each EA alternative.
3. An artificially broader range of RALs would result in an interim EA remedy that would be too large for consideration as defined in the OU3 Order.
4. The interim EA being considered for OU3 is just one part of an overall site-wide remedial strategy. That remedy for the upper part of the system will be much more significant and will address surface sediment COC concentrations that are much higher than those in the OU3 area. The elimination of those higher COC concentrations in the remainder of the system will provide an additional risk reduction complementing the EA initiative. The additional cost increment for further reduction in an immediate OU3 post-construction condition must be balanced with the

risk reduction outcomes that will be achieved within the remainder of the Study Area. The NCP deems a remedy "cost-effective if its costs are proportional to its overall effectiveness" (40 CFR 300.430(f)(1)(ii)(D)).

CSTAG Recommendation 4: Remedial Alternatives

CSTAG's recommendations regarding additional remedial alternatives to be evaluated as part of the EA do not accurately reflect the stability of the sediments in CM 0–2. Sediment stability evaluations documented in the FFS and draft RI Report indicate that resuspension/mixing in CM 0–2 is generally limited to 1 foot or less. This is supported by extensive evaluations of tidal, storm, and propwash forces and multiple lines of evidence supporting that natural recovery is occurring throughout CM 0–2, including the following:

- Shear stresses are low and sediment mixing processes are localized.
- Pre- and post-Superstorm Sandy bathymetric data suggest minimal erosion due to significant storm events.
- Sediment core data indicate only a minimal amount of mixing between the surface (0 to 6 inches) and subsurface sediment (deeper than 6 inches), with generally lower concentrations of COCs in surface sediments.

Given the stability of the system with natural recovery already occurring throughout CM 0–2, even in areas above RALs, it is not necessary to consider the concentrations in subsurface sediments (i.e., deeper than 6 inches) in delineating target remedial areas. The average 2-foot dredge depth evaluated in the FFS was not based on instability concerns but instead was selected to effectively remove surficial sediment and provide a conservative clean cover thickness, including a factor of safety beyond the general top 1-foot mixing depth observed at the site (as supported by the lines of evidence listed in the previous paragraph and further documented in the FFS and draft RI Report). There is no evidence that 2-foot scouring is a remedy driver in the lower 2 miles.

Unnecessarily requiring a greater than 2-foot removal depth and defining Target Areas based on the RAL exceedance at such depths would generate a project too large for consideration based on agreed-to limits as defined in the OU3 Order.

CSTAG Recommendation 5: CSM and Remedy Assumptions

CSTAG raised concern regarding the potential for recontamination that the NCG has already considered following remedy implementation and recommends the FFS more fully describe our understanding of COC sources and transport pathways to better demonstrate that COC sources are not expected to negatively impact remedy success. CSTAG specifically raised concerns regarding the presence of NAPL in CM 0–2 sediments, and a lack of understanding regarding the potential for NAPL to migrate and recontaminate CM 0–2.

The NCG, with USEPA oversight, worked 5 years and spent more than $11 million performing extensive investigations to delineate the presence and extent of NAPL. The overall conclusion of all this work is that NAPL is not mobile and ebullition is not a significant transport pathway in Newtown Creek. These studies were performed to address recommendations made by CSTAG in 2015.[4] A summary of the studies performed and the conclusions of those studies is included in the bullets that follow:

- In CM 0–2, the NAPL delineation dataset included more than 400 surface sediment samples and more than 70 subsurface cores collected during the OU1 RI/FS and OU3 field investigations. In surface sediments, NAPL in the form of blebs (i.e., residual NAPL) was only observed at two locations in the vicinity of CM 1.7, as indicated by the distribution of observations shown in Figure 2-56 of the FFS. With only three exceptions, NAPL in subsurface sediment was in a residual state and distributed intermittently. At CM 1.7 where NAPL was observed at three locations as thin discontinuous lenses, co-located cores contained nothing more than residual NAPL.
- To address CSTAG's concern regarding the potential mobility of NAPL, an extensive NAPL mobility study was performed by the NCG under USEPA-approved work plans and oversight. Locations selected for mobility testing in collaboration with USEPA included those where the most substantial NAPL was observed during the NAPL delineation program. In CM 0–2, a total of 24 sediment and 4 native material test samples selected from various depths with the highest visible indication of NAPL presence were tested. NAPL was not mobile in any of the 24 sediment and 4 native material test samples.
- In response to CSTAG's recommendation to evaluate the potential significance of ebullition as a transport mechanism for NAPL, a multi-year ebullition investigation was performed by the NCG under USEPA-approved work plans and oversight. Field surveys were conducted in 2015 and 2016 to map gas ebullition spatial extent. A pilot study was performed in 2017 to test methodologies for quantitatively measuring the flux of NAPL. In 2018 and 2019, a comprehensive gas ebullition field study was conducted based on the results of the 2017 pilot study. Given the limited amount of gas ebullition observed in OU3 during the prior field ebullition surveys (a combined total of only 0.033 acre, or approximately 0.25% of the OU3 surface area depicted in Figure 2-60 of the FFS), the decision was made to estimate NAPL flux in this portion of the Study Area using data collected from other areas; no further ebullition-related collection activities from OU3 were required by USEPA. The 2018/2019 FS gas

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ebullition field study concluded that gas ebullition was an insignificant transport mechanism for NAPL from sediments to surface water throughout the Study Area, relative to other transport processes. These results were consistent with no observed increase in surface water chemistry through analysis of 904 surface water samples, some of which were collected during lower tides and warmer summer months when ebullition is greatest.

In summary, extensive studies performed during the RI/FS for Newtown Creek support the conclusion that potential NAPL and ebullition conditions in CM 0–2 following the EA are unlikely to negatively impact remedy success.

In closing, the NCG appreciates the opportunity to provide input regarding some of the key CSTAG recommendations. We also reaffirm our commitment to the proposed EA, and maintain that sufficient rationale and information have been provided to reflect its viability and value. Please feel free to reach out to further discuss any of the above issues.

Sincerely,

Tom Schadt
Principal Scientist

cc: Stephanie Vaughn, USEPA Region 2
John Prince, USEPA Region 2
Angela Carpenter, USEPA Region 2
Michael Mintzer, USEPA Region 2